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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,639	07/24/2003	Hiroki Kaneko	520.42879X00	8077

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ARLINGTON, VA 22209-3873

EXAMINER
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BECK, ALEXANDER S

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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01/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/625,639	KANEKO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alexander S. Beck	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-10, 12-14, 17-22, 27-29, 31, 38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 12-14, 17-22, 27-29, 31, 38 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination (“RCE”) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Oct. 31, 2007, has been entered. Claims 1-6, 8-10, 12-14, 17-22, 27-29, 31, 38 and 39 are currently pending and an Office action on the merits follows.

### *Claim Objections*

2. As to claim 38, the status is listed as both “Cancelled” and “Previously Presented” (RCE, p. 7). This appears to be a typographical error, as claims 32-37 should be “Cancelled” (and not claims 32-38). Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 38 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,897,996 to Ikeda et al. (“Ikeda”).

As to claim 38, Ikeda discloses an electrophoretic display comprising a first and second substrate (1, 2) each being disposed with a predetermined gap between the first and second substrates; a layer comprising a transparent insulating solvent (4) and charged particles (5) dispersed in the insulating solvent, the layer being sandwiched between the

substrates; a first electrode (7) disposed in the layer and between the first and second substrates for applying electric field to the layer; and a second electrode (6) supported by the second substrates for applying an electric field to the layer (Ikeda, col. 4, ll. 8-34). The second electrode is provided with a plurality of bumps for reflecting light, wherein the bumps are formed continuously and arranged randomly (Ikeda, col. 9, ll. 7-17; see also col. 10, ll. 55-60).

As to claim 39, Ikeda discloses wherein the first electrode is formed in such a manner as to position at the flat portion between the bumps (Ikeda, Fig. 1).

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-6, 8-10, 12-14, 17-22, 27-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda in view of U.S. Patent Publication No. 2002/0167480 by Johnson et al. ("Johnson").

As to claims 1 and 13, all of the claim limitations have already been discussed and met by Ikeda as detailed in the above paragraphs with respect to claim 38, with the exception of: the first and second electrodes disposed in such a manner that the first and second electrodes are opposite to each other, wherein the first electrode has a network structure with a window in each pixel, wherein the first electrode is divided into a plurality of segments per pixel and the segments are connected and have the same voltage in the pixel, and wherein the bumps on the second electrode are formed in a string like form. Ikeda discloses wherein the bumps on the second electrode are formed in a string like form (e.g. wherein a matrix full of pixels, with a plurality of bumps per pixel,

inherently comprises a plurality of bumps in a string like form across the length and width of a display), but does not disclose expressly the remaining limitations.

Johnson, analogous with Ikeda, discloses an electrophoretic display wherein a first electrode, which is divided into a plurality of segments per pixel (6, 6'), is provided on a first substrate (12) and a second electrode (7) is provided on a second substrate (11) in such a manner that the first and second electrodes are opposite to each other (Johnson, ¶¶ [0031-0035]). Moreover, Johnson discloses wherein the first electrode segments have the same voltage in the pixel (Johnson, ¶ [0032]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electrophoretic display of Ikeda such that the first electrode comprised two electrodes and was disposed on a substrate opposite to that of the second electrode, as taught/suggested by Johnson. Ikeda as modified by Johnson teaches/suggests the first electrode comprising two electrodes (6, 6') isolated from one another on the same substrate, and the area between the two electrodes on the first substrate reads on a "window" in each pixel, the first electrode configuration above each pixel comprising a network structure (Johnson, ¶¶ [0031-0035]). Moreover, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to drive each segmented first electrode at the same potential per pixel, as taught/suggested by Johnson. The suggestion/motivation for doing so would have been to realize intermediate optical states via electric voltages on the supplementary first electrode (6') (Johnson, ¶ [0031]).

As to claim 3, Ikeda as modified by Johnson discloses wherein the first electrode is disposed on the first substrate (Johnson, Fig. 2), and the second electrode is in cooperative relation with the reflector (Ikeda, col. 4, ll. 8-34; see also col. 9, ll. 7-17).

As to claim 10, Ikeda discloses wherein the charged particles have a low reflection ratio, its color being substantially black (Ikeda, col. 5, l. 54 – col. 6, l. 51).

As to claims 12 and 18, Ikeda discloses wherein active elements (10) are disposed on the second substrate (2) to display picture images by active matrix drive (Ikeda, col. 7, ll. 25-27).

As to claim 14, most of the claim limitations have already been discussed and met by Ikeda and Johnson as detailed in the above paragraphs with respect to claims 1, 3 and 13, with the exception of: the bumps of the uneven surface are present in the windows of the network structure of the first electrode. Ikeda discloses wherein the region of the protrusion is determined according to the portion where the electric strength needs to be intensified between first and second electrodes (Ikeda, col. 4, ll. 8-34). It is therefore inherent that the combined teachings of Ikeda and Johnson, as previously combined in the rejection of claims 1 and 13 above, would result in the bumps (e.g., protrusions) of the uneven surface present in the windows of the network structure of the first electrode because the protrusions are located in regions in which there are no first electrodes disposed directly above (i.e., a window) so as to intensify the electric strength.

As to claim 17, all of the claim limitations have been discussed and met by Ikeda and Johnson, as detailed in the above paragraphs with respect to claims 1 and 13.

As to claim 19, Ikeda discloses wherein the uneven surface of the reflector comprises a plurality of bumps and concaves in a pixel (Ikeda, col. 9, ll. 7-17).

As to claims 2 and 20, Ikeda as modified by Johnson teaches/suggests wherein the first electrode comprises a plurality of segments and is disposed on the first substrate (Johnson, ¶¶ [0031-0035]).

As to claim 4, Ikeda as modified by Johnson teaches/suggests wherein the first electrode is disposed above the uneven surface (e.g., roughened surface) of the second electrode (Ikeda, col. 9, ll. 7-17) (Johnson, ¶¶ [0031-0035]).

As to claim 6, Ikeda discloses wherein the uneven surface (i.e., the roughened uneven surface of the electrode or the light scattering layer formed on the electrode) is patterned at random (e.g., randomly covered with grooves, bumps, protrusions, rivets, etc) (Ikeda, col. 9, ll. 7-17).

As to claims 8 and 22, Ikeda discloses wherein the uneven surface has a string structure of continuous bumps (Ikeda, col. 4, ll. 8-34). Moreover, a matrix display full of pixels, with a plurality of bumps per pixel, inherently comprises a plurality of bumps in a string like form across the length and width of a display.

As to claim 9, all of the claim limitations have already been discussed and met by Ikeda and Johnson, as detailed in the above paragraphs with respect to claim 17.

As to claim 27, Ikeda as modified by Johnson teaches/suggests wherein the first electrode is disposed in areas between the bumps in a pixel (e.g., disposed in a pixel between visible protrusions) (Ikeda, col. 9, ll. 7-17) (Johnson, ¶¶ [0031-0035]).

As to claims 5 and 21, Ikeda as modified by Johnson teaches/suggests wherein the first electrode is disposed in areas corresponding to the flat portions (e.g., between

protrusions) of the uneven surface of the second electrode (Ikeda, col. 9, ll. 7-17) (Johnson, ¶¶ [0031-0035]).

As to claims 28, 29 and 31, all of the claim limitations have already been discussed and met by Ikeda and Johnson, as detailed in the above paragraphs with respect to claims 1, 2, 13 and 21, wherein the second substrate (2) of Ikeda is provided with a plurality of bumps in each pixel for reflecting light in that an electrode (6) is disposed on the second substrate for performing the same (Ikeda, col. 4, ll. 8-34; see also col. 9, ll. 7-17 and col. 10, ll. 55-60).

#### *Response to Arguments*

5. Applicant's arguments filed Oct. 31, 2007, have been fully considered but they are not persuasive.

Applicant argues that a proper interpretation of Ikeda would result in a single bump on the pixel being roughed in order to scatter the reflected light, which fails to read on the limitation “wherein the bumps are formed continuously and arranged randomly”, as claimed (RCE, pp. 8-10). Examiner respectfully disagrees and submits that both the protrusion depicted in the figures of Ikeda and the irregularly raised surface caused by the roughening process of Ikeda read on the limitation of a “plurality of bumps in each pixel”, as claimed.

For example, applicant provides Figures A, B and C (RCE, p. 9) and notes that the resulting surface of Ikeda would resemble the image shown in Fig. B. However, examiner respectfully submits that the pixel depicted in Fig. B suggests a “plurality of bumps in each pixel, the bumps being formed continuously”, as claimed, wherein the plurality of bumps and made up of both the large protrusion and the raised portions of the electrode caused by the roughening process. Furthermore, examiner respectfully submits that a



matrix layout of the pixel depicted in Fig. B would suggest the plurality of bumps “arranged in a string like form”, as claimed.

Applicant argues that Johnson fails to disclose wherein the “segments are connected” and “have the same voltage in the pixel” (RCE, p. 11). As to the first limitation, examiner respectfully submits that Johnson fails to teach/suggest this limitation since the segments (6, 6') are connected to one another via a substrate (12) (Johnson, Figs 2A-2D). Furthermore, examiner respectfully submits that the claim is absent any language that would preclude such an interpretation when rejecting the limitation in view of Johnson. As to the second limitation, applicant argues that while Johnson may disclose the segments having the same voltage in the pixel, such a situation is “purely random” (RCE, p. 11). However, examiner respectfully submits that a “purely random” occurrence of the segments having the same voltage still reads on this claim limitation since it is an apparatus claim. In other words, the device of Johnson is fully capable of performing each and every limitation required by the current apparatus claim.

It is believed that all of applicant's arguments have been addressed by the above comments.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander S. Beck whose telephone number is (571) 272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

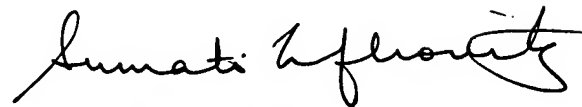
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

asb

Jan. 20, 2008



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SUPERVISORY PATENT EXAMINER